

Murrayfield airpark and resort complex

Royal Aero Club of WA & Hawkview Holdings Pty. Ltd.

**Report and recommendation
of the Environmental Protection Authority**

**Environmental Protection Authority
Perth, Western Australia
Bulletin 639
July 1992**

THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's recommendations.

After the appeal period, and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

APPEALS

If you disagree with any of the assessment report recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of \$10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

ADDRESS

Hon Minister for the Environment
18th Floor, Allendale Square
77 St George's Terrace
PERTH WA 6000

CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 pm on the 1 August, 1992

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Summary and recommendation

The Royal Aero Club of Western Australia and Hawkview Holdings Pty Ltd have jointly proposed to develop a resort and airstrip facility (termed an airpark) on Lots 11 and 12 Nambeelup Road, Nambeelup.

The Environmental Protection Authority required a Consultative Environmental Review (CER) for the project because it has the potential to have important local environmental impacts.

The developers' plan to manage the environmental impacts of the project was released for public comment for four weeks on the 23 December 1991.

The Environmental Protection Authority acknowledges the important role of the Royal Aero Club and the community benefits that would accrue if such a development were to proceed. However, the Authority believes the potential noise impacts associated with the proposed airpark cannot be managed to meet acceptable levels at nearby residences.

Key issues

The major issue raised by the public and the Environmental Protection Authority is:

Would the operation of the airpark generate unacceptable noise for nearby landholders?

The proponents have failed to satisfy the Environmental Protection Authority that nearby landholders will not be affected by excessive noise. Numerous noise complaints have been registered as a consequence of the limited operation of the existing airstrip. The Environmental Protection Authority believes the additional noise would be unacceptable should the development proceed.

Projected noise contours provided by the Civil Aviation Authority indicate a number of existing residences would experience unacceptable noise levels under the proposal.

Issues of secondary concern were also identified including odour impacts from the surrounding landuses on the resort, wetland protection, nutrient pollution and groundwater protection. These issues have not been addressed in detail in this report because the Environmental Protection Authority believes the likely noise impacts are unacceptable and that accordingly the proposal should not proceed.

Recommendation 1

The Environmental Protection Authority concludes that the proposed airpark on lots 11 and 12 Nambeelup Road, Nambeelup is environmentally unacceptable and should not proceed.

In reaching this conclusion, the Authority identified the main environmental factor requiring detailed consideration as:

- **the impact of noise from both the existing and proposed airstrips on the surrounding residences.**

1. The proposal

The Murrayfield Airpark development proposal is sited 10km north-east of Mandurah on lots 11 and 12 Nambeelup Road, Nambeelup. The total area of these holdings is approximately 190 ha. The proposal is to amend the Shire of Murray Town Planning Scheme to permit the construction of an airpark, comprising a resort complex, expanded airstrip utilities and a golfcourse. The existing provision restricts development to rural landuses only, a zoning which permits the operation of a rural airstrip. The proponents are Hawkview Holdings Pty Ltd and the Royal Aero Club of Western Australia.

Development of the site is dependent on a number of approvals and licences including: a Civil Aviation Authority licence; rezoning of the land from rural to special purposes by the Shire of Murray and Department of Planning and Urban Development; a well licence from the Water Authority of Western Australia; a private sewerage scheme licence from the Health Department of Western Australia; planning approval from the Shire of Murray; subdivision approval from the Department of Planning and Urban Development; and environmental approval from the Environmental Protection Authority.

2. Public review

During the public review of the CER a total of 10 submissions were received from members of the public, community groups, local government and government agencies. A detailed summary of these submissions is presented in Appendix 2. The proponents' responses to the issues and comments raised in the summary of submissions is included in Appendix 3.

The main environmental issues raised were:

- noise;
- wetland protection;
- odour; and
- eutrophication of the Serpentine River/Peel Inlet.

3. Environmental impacts

Based on the Environmental Protection Authority's assessment of the proposal, additional information provided in the public submissions, the proponents' responses to the public submissions and further clarification of issues by the proponent and government agencies, the Authority identified the following major environmental issues.

3.1 Noise

Noise impacts fall into two categories, the impacts of the airpark on surrounding landuses and the impacts of the surrounding landuses on the airpark, especially the resort accommodation. The surrounding landuses include a very large intensive piggery (containing up to 26,000 pigs), an abattoir and a kennel estate (a special rural subdivision catering for dog owners and breeders).

There are no proclaimed buffer zones associated with any of the surrounding landuses, nor are there any proposed for the intended airpark.

3.1.1 Impacts of the airpark on surrounding landuses

The proposed airstrips are situated about 750 metres north-west of an existing abattoir (currently not operational), 650 metres south of an intensive piggery and 300 metres east of the nearest residence.

Piggery

The Authority has found no evidence to substantiate any claims that noise generated by the operation of the airpark would adversely affect the operation of the piggery.

Abattoir

Noise is not likely to have an adverse effect on the abattoir (should it become operational).

Residential/kennel zone

The Environmental Protection Authority and the Shires of Murray and Mandurah have registered numerous noise complaints relating to the existing operation of the single airstrip on the proposed site. These complaints have largely originated from the adjoining kennel estate and Nambeelup Estate, situated some 2.5km to the south-west. The complaints from the Nambeelup Estate are well beyond the anticipated area of noise impact and appear to be the result of the undisciplined and atypical actions of only a few pilots. The proponents have given a commitment to manage the behaviour of these pilots should the development proceed (Appendix 4).

Australian Noise Emission Forecast (ANEF) contours have been determined for the proposed airpark by the Civil Aviation Authority. This modelling is regarded as indicative rather than definitive because of the differing flight paths/approaches used by pilots. However, these contours indicate that some homes within the kennel estate would experience noise levels exceeding ANEF 25. This contravenes the Australian Standard for siting residential buildings which the Environmental Protection Authority uses as a guide in advising on the acceptability of aircraft noise. Furthermore, houses within the ANEF 20 would require sound-proofing under this same standard.

The ANEF contouring that has been conducted is based on 300 aircraft movements per day (one take-off and landing is two movements). The Environmental Protection Authority is concerned that the proposed airpark could in the future exceed this capacity thereby impacting more residences than currently predicted by ANEF contouring.

The Authority notes that the current zoning of the kennel estate allows for an increased number of residences to be established on existing vacant lots. Thus the potential exists for an increased number of residences to be affected in the future.

3.1.2 Impacts on the airpark site

Peak noise levels at the nearby piggery are high, so much so that workers must wear hearing protection when entering the sheds. The Authority believes that the frequency of this noise (generally at feeding times) and the proximity of the resort accommodation to the grower sheds (~ 850 metres at the closest point) means that under certain meteorological conditions noise at the nearest residences within the resort may be annoying, but tolerable, especially when considering the ambient noise levels associated with the operation of the airstrips.

The decision to construct a resort complex in proximity to a large piggery is a commercial matter for the proponents; however, in the long-term, the development would invariably restrict the future operation/expansion of the piggery. Similar problems will continue to arise until such time there is a proclaimed buffer for the piggery.

3.2 Other issues

There are secondary issues affecting the development and a brief discussion of these is given below.

3.2.1 Odours

The Authority believes that odours from a nearby piggery may, under certain meteorological conditions, be detectable at the site of the proposed airpark. These odours are expected to be infrequent and given the short-stay nature of the accommodation proposed, may be tolerable.

3.2.2 Groundwater resources

The Environmental Protection Authority believes the impacts associated with the on-site irrigation of treated domestic wastewater are manageable. Clearly, irrigation of effluent should be conducted away from existing domestic bores.

Approvals to irrigate treated domestic wastewater would be required from the Health Department of Western Australia and the Water Authority of Western Australia.

3.2.3 Nutrients

The Environmental Protection Authority is satisfied that nutrient losses from the site could be managed in such a way as to be less than the existing losses from the site.

3.2.4 Wetlands

The majority of the wetlands on the site have been severely degraded due to stock grazing and land clearing. Scope exists to incorporate wetland elements within the design of the airpark complex — which is in accordance with the 'M' and 'R' (multiple use and resource enhancement) management objectives for these wetlands (EPA Bulletin 374, "A Guide to Wetland Management in Perth"). Therefore, the Authority believes the wetland impacts associated with the project could be adequately managed.

4. Conclusions

It is recognized that the proposed development would provide a useful service to the region and to members of the community. However, after careful consideration the Environmental Protection Authority believes that the airstrip component of the proposal is so close to adjacent residences that it would be unacceptable to allow the development to proceed.

The Environmental Protection Authority would reconsider the project if an alternative, better site could be found or an increased noise buffer were added to the proposal so that acceptable noise levels could be achieved.

The Environmental Protection Authority makes the following recommendation:

Recommendation 1

The Environmental Protection Authority concludes that the proposed airpark on lots 11 and 12 Nambeelup Road, Nambeelup is environmentally unacceptable and should not proceed.

In reaching this conclusion, the Authority identified the main environmental factor requiring detailed consideration as:

- the impact of noise from both the existing and proposed airstrips on the surrounding properties.**

Appendix 1

Proponents' commitments on the proposal

9. COMMITMENTS

Commitments represent the proponents solutions to potential environmental problems posed by the development. Essentially they are promises by the proponent regarding the way in which certain aspects of the proposal will be carried out.

The Royal Aero Club of Western Australia and Hawkview Pty Ltd commit to carrying out the following commitments.

1. The proponents will ensure that all commitments and environmental conditions will be heeded and wherever necessary enforced by the lessees, management agencies and subcontractors involved in the construction and operation of the proposal.
2. The proponents will prepare a nutrient and irrigation management program prior to commencement of construction of the golf course and resort which will include the following:
 - fertiliser management types of fertiliser used, frequency of application (based on soil and tissue testing),
 - soil amendment details under fertilised and effluent irrigated area,
 - irrigation management (relating to the rational use of water for irrigation),
 - drainage management,
 - monitoring and as a consequence of findings, changes in management activities.

The above will be implemented during the operation of the airpark and resort to the satisfaction of the EPA and the Waterways Commission.

3. Install and operate a sewage treatment plant that will remove phosphorus from sewage to a concentration of 2mg/L. The resulting effluent will be used for irrigation and solid waste will be disposed of off-site to the satisfaction of the EPA and Health Department.
4. Design and carry out a monitoring program to monitor groundwater levels, water levels in selected wetlands, and water quality parameter during the resorts operation to the satisfaction of the EPA and WAWA.
5. The proponents will, during construction and operation of the resort, maintain the existing functions of all wetlands that are to be retained on site. This will be achieved by preventing physical interference with or destruction of the wetlands, by nutrient management, and by not permitting any surface drainage

or effluents that originate from the aerodrome complex or resort discharging into any wetlands. This will be done to the satisfaction of the EPA.

6. Maintain wherever possible, the remnant vegetation on the site and embark on a planting program in which indigenous trees and shrubs together with other plants will be planted throughout the development area. This will be done to the satisfaction of the EPA.
7. Operate a policy of priority use of runways to reduce the level of noise experienced by residents to the satisfaction of the Shire of Murray.
8. Perform any engine tests between the hours of 0700 and 1800 within a purpose built enclosure designed to reduce the noise generated to acceptable levels with regard to nearby residents to the satisfaction of the Shire of Murray.
9. Ensure that construction activities that have the potential to create unacceptable levels of noise at nearby residences will only be carried out between 0700 and 1800 hours Monday through Saturday. This will be done to the satisfaction of the Shire of Murray.
10. Control dust during and after the construction phase should it be determined that dust levels are high enough to cause inconvenience to neighbouring residents. Dust control will principally be controlled by the use of water carts and will be done to the satisfaction of the Shire of Murray.
11. Store aviation fuel in above ground tanks which are fully banded with a capacity in excess of the quantity of fuel stores, to the satisfaction of the Department of Mines.
12. Install structures such as interceptor pits and oil traps to prevent the spread of fuel that could be spilt from refuelling areas. This will be done to the satisfaction of the EPA.

Appendix 2

Issues raised during the public review period

SUMMARY OF SUBMISSIONS MADE DURING THE PUBLIC SUBMISSION PERIOD

PROPONENT: Royal Aero Club of WA and Hawkview Holdings Pty Ltd

PROPOSAL: Murrayfield Airpark (CER)

CLOSING DATE: 23rd December 1991

NO OF SUBMISSIONS: 10

The following comments, issues and questions have been raised with the Environmental Protection Authority during the public submission period.

1. Noise and odours

- 1.1 Noise from overhead aircraft is currently unacceptable. This problem will only get worse with increased air traffic. Absolute numbers of aircraft using the east-west airstrip and the airspace in the vicinity of the airstrip will increase (hence the need for 140 accommodation units).
- 1.2 Noise levels from the kennel area will increase as more of these blocks are occupied. This may become unacceptable.
- 1.3 Potential for future odours from the abattoir located on Lakes Road has not been addressed. This abattoir is currently not operating.
- 1.4 If this development is allowed to proceed the incidence of noise and odour complaints will increase. These complaints would be symptomatic of the conflict of the development with the rural nature and lifestyle of the area. Not enough consideration of potential future conflicts with existing and future land uses is given (eg Homeswest purchase of the Amarillo property to the north of the site).
- 1.5 A detailed analysis of existing noise levels on the site and in the vicinity has not been made. Where were the noise measurements made? At what time of the day were they made? What prevailing wind? How many measurements were made? What were the levels measured? Similarly, information regarding odour detection on the site has not been provided.
- 1.6 What are the likely noise levels after construction of engine-test enclosures? Venting must be provided in these sheds allowing noise as well as gases to escape.
- 1.7 The EPA has received numerous noise complaints associated with the operation of the existing airstrip, particularly from the vicinity of Nambeelup Pool, some 3 km away, indicating that either:
 - a) that there is little agreement between modelled noise levels and actual noise levels in the vicinity of the airstrip; or
 - b) pilots are not complying with approved flight heights and paths (ie the Aero Club are unwilling to enforce compliance).

The number of noise complaints could be reasonably expected to increase (based on contours provided in Appendix 4, figure 1) should air traffic significantly increase and/or development of the south-west/north-east runway occur.

2. Nutrients

- 2.1 It would appear morally unjust to locate a potentially high phosphorus exporting landuse, such as a golfcourse, within the Peel-Harvey catchment particularly when this development is obviously marketed towards clientele which reside outside the Peel area or the state.
- 2.2 Fertilizer applications on the golfcourse are excessive (1800 kg/ha/yr) and will promote phosphorus loss from the site. Irrigation will further accentuate these losses.
Creeping ground covers should be preferred to lawn.
The use of red mud for restricting phosphorus losses from the site is supported.
No estimation of nutrients being applied to or leaching from the privately owned areas has been made.
- 2.3 The advantages of red mud have been over estimated. Quantities of around 400 - 600 kg/ha could be required to significantly improve the nutrient retention qualities of the soil.

3. Water quality

- 3.1 Not enough attention has been paid to the protection of groundwater from fuel and oil spillage, particularly in the vicinity of the apron, areas of fuel storage and the runway. A detailed prevention and cleanup policy for spillages should be prepared.
- 3.2 No contingency plans have been provided should unacceptable impacts on groundwater or surface waters be detected.

4. Wetlands, flora and fauna

- 4.1 A very small section of the report is dedicated to fauna. The presence of large numbers of birds, emus, kangaroos, reptiles and probably small native mammals on the site is not mentioned. All remnant vegetation and wetlands should be preserved and incorporated in the golfcourse design so that animals are retained on the site. A nature trail should also be considered as part of the site design.
The proponent has not mentioned how emus and kangaroos will be kept off the runway.
- 4.2 No indication of the likely impacts on the wetlands in the area due to groundwater abstraction has been provided. What limits on private abstraction?
- 4.3 Dieback on the site may be present (Fig 5.5?). The site should be assessed for dieback and appropriate hygiene practices developed.
- 4.4 This proposal advocates the destruction of naturally occurring wetlands. This appears to be incompatible with the intent of the draft Swan Coastal Plain (Wetlands) Protection Policy.

5. General

- 5.1 Figure 5.2 and the description of the morphological units are misleading. The unit in the SE corner is described as a broad poorly drained plain (B4). On inspection (4/1/92) this area was inundated and exhibited wetland vegetation types. This unit is obviously a wetland. The entry road to the resort should be relocated so that this wetland is not filled or otherwise affected.

- 5.2 On site use of pesticides has not been addressed - quantities and variety to be used, areas applied, dissipation rates and affects on groundwater and wetlands.
- 5.3 The development lacks a buffer both from and to nearby landuses. The Health Commission of Victoria's "Codes of Practice - Piggeries" recommends a buffer of 3750 metres for piggeries akin to Wandalup Farms. This development would impinge on this buffer (buffer would be reduced to about 500 metres). The Western Australian Department of Agriculture has adopted this criterion in "Environmental Management Guidelines for Animal Based Industries" (Misc Pub 23/89). Urban development may encroach on the airstrips in the future (eg future Amarillo urbanization).

Appendix 3

**Proponents' response to the issues raised
during the public review period**

INTRODUCTION

Following are answers to the questions raised during the public review period on the Murrayfield Airpark and Resort Complex proposal. Under each issue heading the number of the question to which the answer applies has been given. Where no number is given a heading relating to the issue is given.

NOISE

1.1 The only residents that have the potential to experience unacceptable levels of noise from overhead aircraft are those on the western end of the existing runway. All other areas that would experience similar levels of noise are zoned Rural and do not contain dwellings. Even residents west of the existing runway have dwellings that are outside the zone where noise levels would be at their highest. While it is true to say that the numbers of aircraft using the aerodrome will increase (coincident with growth in the area) modelling has shown that the level of unacceptable noise will not increase. After the main runway is completed the number of aircraft movements on the east-west runway will decrease.

1.2 The Proponent recognises that neighbouring activities have the potential to produce noise at levels higher than that normally experienced in a rural area and that these levels of noise may increase with increased development of the kennel area. A degree of local experience with regard to existing noise levels has been taken into account in the planning of the resort by the Proponents. The Proponents have been operating from the site for the past two years and are satisfied that the noise generated from surrounding land uses is insufficient to be of concern.

People buying land within the area zoned for kennels have had to recognise the existence of neighbouring land uses which produce relatively high levels of noise. The Proponent is prepared to do likewise as it does not consider that these noisy activities will be of inconvenience to the resort development. This is primarily because the resort will be designed to ameliorate the effects of noise generated by aircraft immediately adjacent to the resort building. As such they will be more than adequately designed to prevent noise from neighbouring landuses inconveniencing guests.

1.4 Modelling using nationally accepted methods has shown that noise from aircraft utilising the proposed new runway will not unreasonably affect residents living adjacent to the aerodrome or future residents of the proposed Amarillo development in the north. It has been shown that unacceptable levels of noise experienced by residents immediately west of the existing runway will be reduced as a result of this proposal.

- 1.5 The Proponent disagrees with the statement that a detailed analysis of existing noise levels on the site has not been made and suggests that Appendix 4 of the CER be examined. Following are specific details relating to the recording of existing noise on the site.

Continuous measurements were made over a 25 hour period on September 20 and 21 along Nambelup Road and spot checks were made in locations throughout the development area. Conditions noted on the day were fine and calm with occasional light sea breeze. Statistical analysis of the continuous measurements was computed and summarised in the following table.

PERCENTILE LEVELS dB(A)

Time	L5	L10	L50	L90	L95	Leq
1300-1530	65	60	41	33	30	56
1520-1800	56	54	41	30	29	49
1800-2030	50	47	37	30	29	44
2030-2300	45	41	34	31	31	42
2300-0130	45	43	37	36	35	40
0130-0400	40	39	37	35	34	38
0400-0630	46	42	34	31	30	40
0630-0900	54	48	37	32	32	47
0900-1130	66	56	40	32	30	55
1130-1400	64	58	38	31	30	55

- 1.6 It is not anticipated that engine testing will occur in the near future, however, should there be a need the Proponent has committed to constructing purpose-built engine test enclosures to ensure noise levels are kept to acceptable limits. The level of noise that would be experienced by neighbouring residences as a result of engine testing in a purpose enclosure would be no more than 30 dBA.

- 1.7 The Royal Aero Club is aware of the noise complaints from the vicinity of Nambelup Pool associated with the operation of the existing airstrip. It is understood that these complaints mostly relate to the use of the airstrip by a number of local residents who are pilots and operate aircraft in the region. These pilots are reported to be flying at heights and along paths that are not approved of by the Aero Club. The Club has done all within its power to prevent these events from re-occurring by advising aircraft owners of resident friendly routes flown by Royal Aero Club in the area.

To ensure that the potential for noise complaints is minimised, the Royal Aero Club has modified its air circuit plan to limit the passes of aircraft over the Lake Lands Estate (adjacent to Nambelup Pool area). When the Aero Club develop the main runway, it will be able to control the operations of flyers over this area more fully and consequently it is expected that the number of noise complaints

will decrease. In addition, the use of the proposed main runway will further decrease the number of flights over the Lake Lands Estate as the flight circuit is different from that of the current east-west runway.

General

There is no evidence to support claims made that aircraft activities will have an impact on animal behaviour. It is understood that international studies indicate that there is no change in the breeding behaviour of horses, pigs, cattle and dogs as a result of aircraft noise. Enquiries to the Environmental Health Officer of the City of Canning indicate that they have received no complaints in this regard from dog owners within the Fraser Road Kennel area which is situated within the flight training circuit for Jandakot Airport. The Proponent believes that these claims should be made with appropriate references to scientific studies which substantiate this argument.

Currently there are an estimated 350 aircraft movements per month on the east-west runway. When the proposed main runway development is fully operational it is expected that 12% or 42 aircraft movements per month will occur on the east west runway. With growth in the area will come increased usage of the aerodrome. Within a ten year time frame it is possible that flight frequencies will increase many times the current usage.

Currently, the Royal Aero Club liaises directly with members of the public who raise concerns regarding noise produced as a result of its members activities. The Royal Aero Club proposes to continue this level of communication with any members of the public who have concerns regarding the Murrayfield Airpark. Disputes relating to noise will be handled by consultation and arbitration as this system has been found to be successful at other locations where the Royal Aero Club operates. In the past the Club has shown that it is prepared to change its policies and operations should members of the public be inconvenienced by its members activities.

NUTRIENTS

- 2.1 It is agreed that the proposed golf course is potentially a phosphorus exporting land use. However it has less potential to export phosphorus than the existing agricultural landuse as shown by the comparison between the quantities of nutrients currently applied to the site and the quantities that would be applied as a result of the development. This shows that the amount of phosphorus applied will decrease by 65%. As a result of this and the numerous features designed to limit the movement of phosphorus such as the application of red mud to the soil it is concluded that there will be a net reduction in the amount of phosphorus exported from the site.

2.2 &

- 2.3 The fertiliser application rates described in the CER are indicative only as are the estimated quantities of red mud required to improve the nutrient retention qualities of the soil. The Proponent is committed to producing a nutrient and irrigation management plan for the golf course prior to its construction. In this plan, rates of fertiliser application, types of fertilisers, rates of irrigation, types of turf, and the quantities of red mud applied will be described in detail. These will have been specifically designed for the conditions which exist on site. The Proponent is committed to seeking the advice of government agencies in this regard and to performing these activities to the satisfaction of the EPA.

WATER QUALITY

- 3.1 The CER describes the facilities that will be installed to prevent any spillages of oil and fuel from reaching surface and groundwaters. Fuel will be stored in an above ground tank which will be fully bunded. Areas draining off fuel storage locations and refueling aprons will have oil traps, flame traps and other mechanisms designed to prevent the transport of any spillage away from these areas. The Proponent is obliged by law to install the above in conformance to the Explosives and Dangerous Goods Act, 1961 as described in Australian Standards 1940-1988, the Storage and Handling of Flammable and Combustible Liquids.
- 3.2 The Proponent will be providing a contingency plan in the nutrient and irrigation management plan with regard to nutrients in groundwaters and surface waters. Should monitoring detect rising levels of nutrients methods and rates of fertiliser application will be reviewed. Other sources of impact on groundwater or surface waters are not anticipated.

WETLANDS, FLORA AND FAUNA

- 4.1 The Proponent has gone to great effort to retain the remaining areas of good quality remnant vegetation and wetlands that occur within the site. These have without exception been incorporated into the design of the resort and aerodrome complex. This will ensure as much habitat for animals as is possible given that development of the site. The Proponent will be planting endemic species and other vegetation to enhance the beauty of the site and reduce its visual impact. This will also provide additional habitat for fauna.

The Proponent does not envisage any need to prevent emus and kangaroos being on the aerodrome. It is common for kangaroos and emus to be found within areas surrounding country aerodromes. Kangaroos are found at Jandakot and Bunbury and based on previous experience no problems are envisaged at Murrayfield.

- 4.2 Studies on the effects of groundwater abstraction found that there would be no affect on wetlands of the site if water was drawn from the Leederville formation. There is potential for wetland water levels to be affected if water is drawn from the Bassendean Sand unconfined aquifer. Given this it is likely that the Leederville Formation will be the preferred source of groundwater. One of the requirements of gaining a licence to extract waters from the superficial aquifer will be the monitoring of water levels on the sites wetlands. The Proponent has also committed to performing this monitoring in the CER. If it is found that abstraction is affecting the wetlands then modifications will be made regarding the rate of extraction from the superficial aquifer. This will be fully described in the nutrient management and irrigation plan.
- 4.3 A botanical survey did not detect dieback on the site. Stands of *Banksia* were in good health while isolated trees look to have been killed by burning and clearing, not by dieback. As a result of the above, the Proponent see's no need to further assess the site for dieback.
- 4.4 The Proponent has endeavoured to retain wetlands on the site that are of good quality. Only those that are unavoidable will be affected by the proposal. Assessment of those that are affected has shown them to be small, and of poor quality having been grazed and cleared. All these are ephemeral and have no importance as a summer refuge to waterbirds. The Proponent proposes to construct a number of permanent water bodies on the site within the golf course area and this, together with protection of the wetlands in good condition, will compensate for the small wetlands affected by the proposal.

The draft Swan Coastal Plain (Wetlands Protection Policy) states that any proposal that proposes to interfere with naturally occurring wetlands needs to be assessed in an environmental impact statement. The Proponent has conformed to this by preparing the CER and has included in it an assessment of each wetland on the site using the questionnaires from the draft policy.

- 5.1 Obstacle limitation limits have resulted in the need to place the entrance of the facility in the north-east corner of the site. This entrance is close to an existing wetland in the north-east and should go round its edge with little or no impact on its inundated area. The area designated on Figure 5.2 of the CER as a broadly drained plain is larger than the extent of the water body and this has lead to the conclusion that the road would impinge on the wetland.

ODOUR

- 1.3 The Proponent was aware of the existance of the abattoir during planning of the proposal even though it is not currently operating. It is prepared to accept its existance as other landownwers in the area have done.

- 5.3 The Proponent disagrees with the statement that the development lacks a buffer to the Wandalup Farm piggery. A buffer zone containing the proposed golf course and vacant land within the piggery site exist between the odour producing elements of the piggery and the proposed location of resort buildings. There will be a minimum distance of 850m between the resort building and the piggery sheds and 1200m between the resort building and effluent disposal ponds.

The Western Australian Department of Agriculture has adopted a series of recommended buffers distances for piggeries. For a piggery the size of Wandalup Farms, a buffer of 5km is required between a townsite, such as that proposed at Amarillo and the piggery, and 300m between isolated rural dwellings, dairies and industries and the piggery. It is considered that the resort equates more to an isolated dwelling or industry than a townsite principally because there will be only one establishment and visitors will be temporary and not live permanently in the area. As such the applicable buffer zone is 300m not the 3750m asserted with reference to Victorian Codes which are not applicable to Western Australia.

Recreational activities such as flying and golfing will be the major activities that guests will engage in during their stay. The Department of Agriculture's Guidelines recommend a buffer of 200m between recreational areas and a piggery of Wandalup Farms size. The distance between the nearest piggery shed and nearest golf course hole is 450m, and the distance between the effluent treatment pond and the nearest golf course hole is 900m thus there is more than sufficient buffer according to the W.A. guidelines.

The Royal Aero Club is satisfied that the buffers proposed are sufficient to prevent odour from affecting the resort guests, especially considering that all resort buildings will be fully airconditioned. The Club has been operating from the site for the past 2 years and the odour experienced is considered to be insufficient to warrant concern. The probable reason for these low levels of odour is because prevailing winds blow odours away from the site rather than toward it. Examination of a locality plan also shows that many kennel lots are closer to the piggery buildings and ponds than the proposed resort. To the knowledge of the Royal Aero Club there have not been complaints by owners within the kennel area in respect to odours from the piggery. This supports the Club's view that the piggery will not pose a problem. On the basis of the above, it is believed that no additional management strategies are required to manage odour.

PESTICIDES

- 5.2 Significant applications of pesticides are not envisaged as a result of the proposal thus details of varieties and quantities to be used are not considered relevant. If necessary, action will be taken to control mosquitos but only if they pose a problem. Advice will be sought on appropriate methods of control from the local government authority as used throughout the Shire.

OTHER ISSUES RAISED

Compatibility with Adjacent Landuses

The Proponent does not believe that the surrounding land uses will adversely affect resort users. It is considered that existing levels of noise and odour experienced on the site will not be sufficient to cause concern to the temporary guests at the resort. This conclusion is supported by previous experience on the site, buffers between existing landuses and the resort, specialised noise studies, and the nature of the activities which guests will be involved in. Studies have shown that the proposal will not subject residents to unacceptable levels of noise over that already experienced by existing landuses. As a result of the above the Proponent is of the opinion that the resort is compatible with the existing landuses in the area.

Light Spill

It is expected that spill from lights which will illuminate the main runway will not disturb adjoining properties. This is because the lights are designed to be viewed from above and not to spread light about the ground. These lights are small and will only be turned on when required. Shielding from planted trees along boundaries should effectively prevent any light from reaching neighbouring land holders.

Lifestyle

The majority of people who have moved to the area will have been made aware of the existence of the piggery, the abattoir, the existing airfield, and the expanding kennel area prior to moving. As such they would be aware of the potential level of noise these activities can produce and the affect this would have on lifestyle. Most country towns have airfields and thus it is considered that they are part of a typical rural setting in Western Australia.

Property Values

It is expected that the proposal will have a positive impact on property values on adjacent properties. Recent sales indicate that the value of properties has improved over the past few years despite knowledge that the resort is proposed. It is expected that further increases in the value of properties will occur due to the presence of adjacent high quality recreational facilities that will be accessible to members of the public through membership of the Royal Aero Club.

Public Consultation

The Royal Aero Club conducted one to one meetings with all available adjacent landowners to gather their opinions regarding the proposed development as part of the social impact assessment of the proposal. During these meetings residents raised concerns regarding the development and thus it is incorrect to say that local community members were disinclined to object to the development. When these people were given details regarding the proposal including the normal operational safety measures and

practices that would be undertaken they were generally satisfied with the proposal. Upon departure residents were asked to contact the Royal Aero Club if they had any further concerns, some have done so and some have visited the current operation to gain further information on the proposal. Since the Royal Aero Club undertook the Social Impact Assessment, the adjoining owners have been given further opportunity to comment on the proposal. In October 1991, the Shire of Murray advertised the proposal for public comment prior to considering an application for planning consent. In accordance with provisions of Councils district planning scheme, a sign was erected on site and notices sent to each owner advising them of the proposal and inviting comment. Only seven owners responded. The results of those submissions correlates with those lodged in respect of the CER and issues raised in the Social Impact Assessment.

Based on the above interactions the Proponent feels that it is fully aware of the concerns of nearby residents, that these concerns have been answered in the CER and have been allayed. The Proponent intends to continue interacting with residents who feel they will be affected by the proposal. The Proponent believes that this is an adequate method of dealing with legitimate concerns and thus sees no need for further formal surveys.

Alternative Sites

A large number of alternative sites were considered for the development and an assessment of these areas is given in the CER. It is not true to say that other areas could be used for the development as others do not offer the same features as the Nambeelup site.

Appendix 4

Additional commitments given by the proponents

ALAN TINGLAY & ASSOCIATES
ENVIRONMENTAL SCIENTISTS
A.C.N. 009 103 468

ENVIRONMENTAL PROTECTION AUTHORITY

23 MAR 1992

SAB:pl/161.92005

File No. T-2-89-152

20 March 1992

Mr Jeff Bott
Assessment Officer
Environmental Protection Authority
38 Mounts Bay Road
PERTH WA 6000

FAXED

Dear Jeff,

RE: MURRAYFIELD RESPONSES

This letter is in response to discussions with you regarding the expansion of the Murrayfield Airpark at Nambelup and the potential impact of noise from aircraft on the proposed Amarillo development.

Modelling by the proponents noise consultants and an Australian Noise Exposure Forecast generated by the Civil Aviation Authority in Canberra has shown that the area exposed to unacceptable levels of noise for residential purposes is confined to the aerodrome and its immediate vicinity. The maximum extension of this zone is 1800m to the north-east. Beyond this zone the level of noise that would be experienced would be considered acceptable for residential land uses by the Civil Aviation Authority. On this basis it is concluded that aircraft will not unacceptably affect the future residents of the proposed Amarillo Estate.

Despite the above, the proponent is prepared to commit to controlling the activities of its members should it be shown that the above forecasts have been incorrect.

"The Royal Aero Club of Western Australia and Hawkview Pty Ltd commit to the following:

The proponent will control the activities of its shareholders and members should it be shown that their activities have breached Civil Aviation Authority Codes of Conduct or resulted in the exceeding of Civil Aviation Authority Guidelines relating to noise and therefore unacceptably affected the residents of the proposed Homeswest Amarillo Estate. This will be done to the satisfaction of the Civil Aviation Authority and the Environmental Protection Authority."

You will note that the commitment also covers the behaviour of pilots and that this behaviour will need to be in conformance with CAA Codes.

I hope the above meets your requirements and will be happy to provide more information or answer any questions that you may have.

Yours sincerely,



SCOTT BIRD
Associate

54764 INF

Murrayfield airpark and resort complex

Royal Aero Club of WA & Hawkview Holdings Pty. Ltd.

**Report and recommendation
of the Environmental Protection Authority**

**Environmental Protection Authority
Perth, Western Australia
Bulletin 639
July 1992**

THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's recommendations.

After the appeal period, and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

APPEALS

If you disagree with any of the assessment report recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of \$10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

ADDRESS

Hon Minister for the Environment
18th Floor, Allendale Square
77 St George's Terrace
PERTH WA 6000

CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 pm on the 1 August, 1992

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2. Issues raised during the public review period
3. Proponents' response to the issues raised during the public review period
4. Additional commitments given by the proponents

Summary and recommendation

The Royal Aero Club of Western Australia and Hawkview Holdings Pty Ltd have jointly proposed to develop a resort and airstrip facility (termed an airpark) on Lots 11 and 12 Nambeelup Road, Nambeelup.

The Environmental Protection Authority required a Consultative Environmental Review (CER) for the project because it has the potential to have important local environmental impacts.

The developers' plan to manage the environmental impacts of the project was released for public comment for four weeks on the 23 December 1991.

The Environmental Protection Authority acknowledges the important role of the Royal Aero Club and the community benefits that would accrue if such a development were to proceed. However, the Authority believes the potential noise impacts associated with the proposed airpark cannot be managed to meet acceptable levels at nearby residences.

Key issues

The major issue raised by the public and the Environmental Protection Authority is:

Would the operation of the airpark generate unacceptable noise for nearby landholders?

The proponents have failed to satisfy the Environmental Protection Authority that nearby landholders will not be affected by excessive noise. Numerous noise complaints have been registered as a consequence of the limited operation of the existing airstrip. The Environmental Protection Authority believes the additional noise would be unacceptable should the development proceed.

Projected noise contours provided by the Civil Aviation Authority indicate a number of existing residences would experience unacceptable noise levels under the proposal.

Issues of secondary concern were also identified including odour impacts from the surrounding landuses on the resort, wetland protection, nutrient pollution and groundwater protection. These issues have not been addressed in detail in this report because the Environmental Protection Authority believes the likely noise impacts are unacceptable and that accordingly the proposal should not proceed.

Recommendation 1

The Environmental Protection Authority concludes that the proposed airpark on lots 11 and 12 Nambeelup Road, Nambeelup is environmentally unacceptable and should not proceed.

In reaching this conclusion, the Authority identified the main environmental factor requiring detailed consideration as:

- **the impact of noise from both the existing and proposed airstrips on the surrounding residences.**

1. The proposal

The Murrayfield Airpark development proposal is sited 10km north-east of Mandurah on lots 11 and 12 Nambelup Road, Nambelup. The total area of these holdings is approximately 190 ha. The proposal is to amend the Shire of Murray Town Planning Scheme to permit the construction of an airpark, comprising a resort complex, expanded airstrip utilities and a golfcourse. The existing provision restricts development to rural landuses only, a zoning which permits the operation of a rural airstrip. The proponents are Hawkview Holdings Pty Ltd and the Royal Aero Club of Western Australia.

Development of the site is dependent on a number of approvals and licences including: a Civil Aviation Authority licence; rezoning of the land from rural to special purposes by the Shire of Murray and Department of Planning and Urban Development; a well licence from the Water Authority of Western Australia; a private sewerage scheme licence from the Health Department of Western Australia; planning approval from the Shire of Murray; subdivision approval from the Department of Planning and Urban Development; and environmental approval from the Environmental Protection Authority.

2. Public review

During the public review of the CER a total of 10 submissions were received from members of the public, community groups, local government and government agencies. A detailed summary of these submissions is presented in Appendix 2. The proponents' responses to the issues and comments raised in the summary of submissions is included in Appendix 3.

The main environmental issues raised were:

- noise;
- wetland protection;
- odour; and
- eutrophication of the Serpentine River/Peel Inlet.

3. Environmental impacts

Based on the Environmental Protection Authority's assessment of the proposal, additional information provided in the public submissions, the proponents' responses to the public submissions and further clarification of issues by the proponent and government agencies, the Authority identified the following major environmental issues.

3.1 Noise

Noise impacts fall into two categories, the impacts of the airpark on surrounding landuses and the impacts of the surrounding landuses on the airpark, especially the resort accommodation. The surrounding landuses include a very large intensive piggery (containing up to 26,000 pigs), an abattoir and a kennel estate (a special rural subdivision catering for dog owners and breeders).

There are no proclaimed buffer zones associated with any of the surrounding landuses, nor are there any proposed for the intended airpark.

3.1.1 Impacts of the airpark on surrounding landuses

The proposed airstrips are situated about 750 metres north-west of an existing abattoir (currently not operational), 650 metres south of an intensive piggery and 300 metres east of the nearest residence.

Piggery

The Authority has found no evidence to substantiate any claims that noise generated by the operation of the airpark would adversely affect the operation of the piggery.

Abattoir

Noise is not likely to have an adverse effect on the abattoir (should it become operational).

Residential/kennel zone

The Environmental Protection Authority and the Shires of Murray and Mandurah have registered numerous noise complaints relating to the existing operation of the single airstrip on the proposed site. These complaints have largely originated from the adjoining kennel estate and Nambeelup Estate, situated some 2.5km to the south-west. The complaints from the Nambeelup Estate are well beyond the anticipated area of noise impact and appear to be the result of the undisciplined and atypical actions of only a few pilots. The proponents have given a commitment to manage the behaviour of these pilots should the development proceed (Appendix 4).

Australian Noise Emission Forecast (ANEF) contours have been determined for the proposed airpark by the Civil Aviation Authority. This modelling is regarded as indicative rather than definitive because of the differing flight paths/approaches used by pilots. However, these contours indicate that some homes within the kennel estate would experience noise levels exceeding ANEF 25. This contravenes the Australian Standard for siting residential buildings which the Environmental Protection Authority uses as a guide in advising on the acceptability of aircraft noise. Furthermore, houses within the ANEF 20 would require sound-proofing under this same standard.

The ANEF contouring that has been conducted is based on 300 aircraft movements per day (one take-off and landing is two movements). The Environmental Protection Authority is concerned that the proposed airpark could in the future exceed this capacity thereby impacting more residences than currently predicted by ANEF contouring.

The Authority notes that the current zoning of the kennel estate allows for an increased number of residences to be established on existing vacant lots. Thus the potential exists for an increased number of residences to be affected in the future.

3.1.2 Impacts on the airpark site

Peak noise levels at the nearby piggery are high, so much so that workers must wear hearing protection when entering the sheds. The Authority believes that the frequency of this noise (generally at feeding times) and the proximity of the resort accommodation to the grower sheds (~ 850 metres at the closest point) means that under certain meteorological conditions noise at the nearest residences within the resort may be annoying, but tolerable, especially when considering the ambient noise levels associated with the operation of the airstrips.

The decision to construct a resort complex in proximity to a large piggery is a commercial matter for the proponents; however, in the long-term, the development would invariably restrict the future operation/expansion of the piggery. Similar problems will continue to arise until such time there is a proclaimed buffer for the piggery.

3.2 Other issues

There are secondary issues affecting the development and a brief discussion of these is given below.

3.2.1 Odours

The Authority believes that odours from a nearby piggery may, under certain meteorological conditions, be detectable at the site of the proposed airpark. These odours are expected to be infrequent and given the short-stay nature of the accommodation proposed, may be tolerable.

3.2.2 Groundwater resources

The Environmental Protection Authority believes the impacts associated with the on-site irrigation of treated domestic wastewater are manageable. Clearly, irrigation of effluent should be conducted away from existing domestic bores.

Approvals to irrigate treated domestic wastewater would be required from the Health Department of Western Australia and the Water Authority of Western Australia.

3.2.3 Nutrients

The Environmental Protection Authority is satisfied that nutrient losses from the site could be managed in such a way as to be less than the existing losses from the site.

3.2.4 Wetlands

The majority of the wetlands on the site have been severely degraded due to stock grazing and land clearing. Scope exists to incorporate wetland elements within the design of the airpark complex — which is in accordance with the 'M' and 'R' (multiple use and resource enhancement) management objectives for these wetlands (EPA Bulletin 374, "A Guide to Wetland Management in Perth"). Therefore, the Authority believes the wetland impacts associated with the project could be adequately managed.

4. Conclusions

It is recognized that the proposed development would provide a useful service to the region and to members of the community. However, after careful consideration the Environmental Protection Authority believes that the airstrip component of the proposal is so close to adjacent residences that it would be unacceptable to allow the development to proceed.

The Environmental Protection Authority would reconsider the project if an alternative, better site could be found or an increased noise buffer were added to the proposal so that acceptable noise levels could be achieved.

The Environmental Protection Authority makes the following recommendation:

Recommendation 1

The Environmental Protection Authority concludes that the proposed airpark on lots 11 and 12 Nambeelup Road, Nambeelup is environmentally unacceptable and should not proceed.

In reaching this conclusion, the Authority identified the main environmental factor requiring detailed consideration as:

- the impact of noise from both the existing and proposed airstrips on the surrounding properties.

Appendix 1

Proponents' commitments on the proposal

9. COMMITMENTS

Commitments represent the proponents solutions to potential environmental problems posed by the development. Essentially they are promises by the proponent regarding the way in which certain aspects of the proposal will be carried out.

The Royal Aero Club of Western Australia and Hawkview Pty Ltd commit to carrying out the following commitments.

1. The proponents will ensure that all commitments and environmental conditions will be heeded and wherever necessary enforced by the lessees, management agencies and subcontractors involved in the construction and operation of the proposal.
2. The proponents will prepare a nutrient and irrigation management program prior to commencement of construction of the golf course and resort which will include the following:
 - fertiliser management types of fertiliser used, frequency of application (based on soil and tissue testing),
 - soil amendment details under fertilised and effluent irrigated area,
 - irrigation management (relating to the rational use of water for irrigation),
 - drainage management,
 - monitoring and as a consequence of findings, changes in management activities.

The above will be implemented during the operation of the airpark and resort to the satisfaction of the EPA and the Waterways Commission.

3. Install and operate a sewage treatment plant that will remove phosphorus from sewage to a concentration of 2mg/L. The resulting effluent will be used for irrigation and solid waste will be disposed of off-site to the satisfaction of the EPA and Health Department.
4. Design and carry out a monitoring program to monitor groundwater levels, water levels in selected wetlands, and water quality parameter during the resorts operation to the satisfaction of the EPA and WAWA.
5. The proponents will, during construction and operation of the resort, maintain the existing functions of all wetlands that are to be retained on site. This will be achieved by preventing physical interference with or destruction of the wetlands, by nutrient management, and by not permitting any surface drainage

or effluents that originate from the aerodrome complex or resort discharging into any wetlands. This will be done to the satisfaction of the EPA.

6. Maintain wherever possible, the remnant vegetation on the site and embark on a planting program in which indigenous trees and shrubs together with other plants will be planted throughout the development area. This will be done to the satisfaction of the EPA.
7. Operate a policy of priority use of runways to reduce the level of noise experienced by residents to the satisfaction of the Shire of Murray.
8. Perform any engine tests between the hours of 0700 and 1800 within a purpose built enclosure designed to reduce the noise generated to acceptable levels with regard to nearby residents to the satisfaction of the Shire of Murray.
9. Ensure that construction activities that have the potential to create unacceptable levels of noise at nearby residences will only be carried out between 0700 and 1800 hours Monday through Saturday. This will be done to the satisfaction of the Shire of Murray.
10. Control dust during and after the construction phase should it be determined that dust levels are high enough to cause inconvenience to neighbouring residents. Dust control will principally be controlled by the use of water carts and will be done to the satisfaction of the Shire of Murray.
11. Store aviation fuel in above ground tanks which are fully banded with a capacity in excess of the quantity of fuel stores, to the satisfaction of the Department of Mines.
12. Install structures such as interceptor pits and oil traps to prevent the spread of fuel that could be spilt from refuelling areas. This will be done to the satisfaction of the EPA.

Appendix 2

Issues raised during the public review period

SUMMARY OF SUBMISSIONS MADE DURING THE PUBLIC SUBMISSION PERIOD

PROPONENT: Royal Aero Club of WA and Hawkview Holdings Pty Ltd

PROPOSAL: Murrayfield Airpark (CER)

CLOSING DATE: 23rd December 1991

NO OF SUBMISSIONS: 10

The following comments, issues and questions have been raised with the Environmental Protection Authority during the public submission period.

1. Noise and odours

- 1.1 Noise from overhead aircraft is currently unacceptable. This problem will only get worse with increased air traffic. Absolute numbers of aircraft using the east-west airstrip and the airspace in the vicinity of the airstrip will increase (hence the need for 140 accommodation units).
- 1.2 Noise levels from the kennel area will increase as more of these blocks are occupied. This may become unacceptable.
- 1.3 Potential for future odours from the abattoir located on Lakes Road has not been addressed. This abattoir is currently not operating.
- 1.4 If this development is allowed to proceed the incidence of noise and odour complaints will increase. These complaints would be symptomatic of the conflict of the development with the rural nature and lifestyle of the area. Not enough consideration of potential future conflicts with existing and future land uses is given (eg Homeswest purchase of the Amarillo property to the north of the site).
- 1.5 A detailed analysis of existing noise levels on the site and in the vicinity has not been made. Where were the noise measurements made? At what time of the day were they made? What prevailing wind? How many measurements were made? What were the levels measured? Similarly, information regarding odour detection on the site has not been provided.
- 1.6 What are the likely noise levels after construction of engine-test enclosures? Venting must be provided in these sheds allowing noise as well as gases to escape.
- 1.7 The EPA has received numerous noise complaints associated with the operation of the existing airstrip, particularly from the vicinity of Nambelup Pool, some 3 km away, indicating that either:
 - a) that there is little agreement between modelled noise levels and actual noise levels in the vicinity of the airstrip; or
 - b) pilots are not complying with approved flight heights and paths (ie the Aero Club are unwilling to enforce compliance).

The number of noise complaints could be reasonably expected to increase (based on contours provided in Appendix 4, figure 1) should air traffic significantly increase and/or development of the south-west/north-east runway occur.

2. Nutrients

- 2.1 It would appear morally unjust to locate a potentially high phosphorus exporting landuse, such as a golfcourse, within the Peel-Harvey catchment particularly when this development is obviously marketed towards clientele which reside outside the Peel area or the state.
- 2.2 Fertilizer applications on the golfcourse are excessive (1800 kg/ha/yr) and will promote phosphorus loss from the site. Irrigation will further accentuate these losses.
Creeping ground covers should be preferred to lawn.
The use of red mud for restricting phosphorus losses from the site is supported.
No estimation of nutrients being applied to or leaching from the privately owned areas has been made.
- 2.3 The advantages of red mud have been over estimated. Quantities of around 400 - 600 kg/ha could be required to significantly improve the nutrient retention qualities of the soil.

3. Water quality

- 3.1 Not enough attention has been paid to the protection of groundwater from fuel and oil spillage, particularly in the vicinity of the apron, areas of fuel storage and the runway. A detailed prevention and cleanup policy for spillages should be prepared.
- 3.2 No contingency plans have been provided should unacceptable impacts on groundwater or surface waters be detected.

4. Wetlands, flora and fauna

- 4.1 A very small section of the report is dedicated to fauna. The presence of large numbers of birds, emus, kangaroos, reptiles and probably small native mammals on the site is not mentioned. All remnant vegetation and wetlands should be preserved and incorporated in the golfcourse design so that animals are retained on the site. A nature trail should also be considered as part of the site design.
The proponent has not mentioned how emus and kangaroos will be kept off the runway.
- 4.2 No indication of the likely impacts on the wetlands in the area due to groundwater abstraction has been provided. What limits on private abstraction?
- 4.3 Dieback on the site may be present (Fig 5.5?). The site should be assessed for dieback and appropriate hygiene practices developed.
- 4.4 This proposal advocates the destruction of naturally occurring wetlands. This appears to be incompatible with the intent of the draft Swan Coastal Plain (Wetlands) Protection Policy.

5. General

- 5.1 Figure 5.2 and the description of the morphological units are misleading. The unit in the SE corner is described as a broad poorly drained plain (B4). On inspection (4/1/92) this area was inundated and exhibited wetland vegetation types. This unit is obviously a wetland. The entry road to the resort should be relocated so that this wetland is not filled or otherwise affected.

- 5.2 On site use of pesticides has not been addressed - quantities and variety to be used, areas applied, dissipation rates and affects on groundwater and wetlands.
- 5.3 The development lacks a buffer both from and to nearby landuses. The Health Commission of Victoria's "Codes of Practice - Piggeries" recommends a buffer of 3750 metres for piggeries akin to Wandalup Farms. This development would impinge on this buffer (buffer would be reduced to about 500 metres). The Western Australian Department of Agriculture has adopted this criterion in "Environmental Management Guidelines for Animal Based Industries" (Misc Pub 23/89). Urban development may encroach on the airstrips in the future (eg future Amarillo urbanization).

Appendix 3

**Proponents' response to the issues raised
during the public review period**

INTRODUCTION

Following are answers to the questions raised during the public review period on the Murrayfield Airpark and Resort Complex proposal. Under each issue heading the number of the question to which the answer applies has been given. Where no number is given a heading relating to the issue is given.

NOISE

1.1 The only residents that have the potential to experience unacceptable levels of noise from overhead aircraft are those on the western end of the existing runway. All other areas that would experience similar levels of noise are zoned Rural and do not contain dwellings. Even residents west of the existing runway have dwellings that are outside the zone where noise levels would be at their highest. While it is true to say that the numbers of aircraft using the aerodrome will increase (coincident with growth in the area) modelling has shown that the level of unacceptable noise will not increase. After the main runway is completed the number of aircraft movements on the east-west runway will decrease.

1.2 The Proponent recognises that neighbouring activities have the potential to produce noise at levels higher than that normally experienced in a rural area and that these levels of noise may increase with increased development of the kennel area. A degree of local experience with regard to existing noise levels has been taken into account in the planning of the resort by the Proponents. The Proponents have been operating from the site for the past two years and are satisfied that the noise generated from surrounding land uses is insufficient to be of concern.

People buying land within the area zoned for kennels have had to recognise the existence of neighbouring land uses which produce relatively high levels of noise. The Proponent is prepared to do likewise as it does not consider that these noisy activities will be of inconvenience to the resort development. This is primarily because the resort will be designed to ameliorate the effects of noise generated by aircraft immediately adjacent to the resort building. As such they will be more than adequately designed to prevent noise from neighbouring landuses inconveniencing guests.

1.4 Modelling using nationally accepted methods has shown that noise from aircraft utilising the proposed new runway will not unreasonably affect residents living adjacent to the aerodrome or future residents of the proposed Amarillo development in the north. It has been shown that unacceptable levels of noise experienced by residents immediately west of the existing runway will be reduced as a result of this proposal.

- 1.5 The Proponent disagrees with the statement that a detailed analysis of existing noise levels on the site has not been made and suggests that Appendix 4 of the CER be examined. Following are specific details relating to the recording of existing noise on the site.

Continuous measurements were made over a 25 hour period on September 20 and 21 along Nambelup Road and spot checks were made in locations throughout the development area. Conditions noted on the day were fine and calm with occasional light sea breeze. Statistical analysis of the continuous measurements was computed and summarised in the following table.

PERCENTILE LEVELS dB(A)

Time	L5	L10	L50	L90	L95	Leq
1300-1530	65	60	41	33	30	56
1520-1800	56	54	41	30	29	49
1800-2030	50	47	37	30	29	44
2030-2300	45	41	34	31	31	42
2300-0130	45	43	37	36	35	40
0130-0400	40	39	37	35	34	38
0400-0630	46	42	34	31	30	40
0630-0900	54	48	37	32	32	47
0900-1130	66	56	40	32	30	55
1130-1400	64	58	38	31	30	55

- 1.6 It is not anticipated that engine testing will occur in the near future, however, should there be a need the Proponent has committed to constructing purpose-built engine test enclosures to ensure noise levels are kept to acceptable limits. The level of noise that would be experienced by neighbouring residences as a result of engine testing in a purpose enclosure would be no more than 30 dBA.

- 1.7 The Royal Aero Club is aware of the noise complaints from the vicinity of Nambelup Pool associated with the operation of the existing airstrip. It is understood that these complaints mostly relate to the use of the airstrip by a number of local residents who are pilots and operate aircraft in the region. These pilots are reported to be flying at heights and along paths that are not approved of by the Aero Club. The Club has done all within its power to prevent these events from re-occurring by advising aircraft owners of resident friendly routes flown by Royal Aero Club in the area.

To ensure that the potential for noise complaints is minimised, the Royal Aero Club has modified its air circuit plan to limit the passes of aircraft over the Lake Lands Estate (adjacent to Nambelup Pool area). When the Aero Club develop the main runway, it will be able to control the operations of flyers over this area more fully and consequently it is expected that the number of noise complaints

will decrease. In addition, the use of the proposed main runway will further decrease the number of flights over the Lake Lands Estate as the flight circuit is different from that of the current east-west runway.

General

There is no evidence to support claims made that aircraft activities will have an impact on animal behaviour. It is understood that international studies indicate that there is no change in the breeding behaviour of horses, pigs, cattle and dogs as a result of aircraft noise. Enquiries to the Environmental Health Officer of the City of Canning indicate that they have received no complaints in this regard from dog owners within the Fraser Road Kennel area which is situated within the flight training circuit for Jandakot Airport. The Proponent believes that these claims should be made with appropriate references to scientific studies which substantiate this argument.

Currently there are an estimated 350 aircraft movements per month on the east-west runway. When the proposed main runway development is fully operational it is expected that 12% or 42 aircraft movements per month will occur on the east west runway. With growth in the area will come increased usage of the aerodrome. Within a ten year time frame it is possible that flight frequencies will increase many times the current usage.

Currently, the Royal Aero Club liaises directly with members of the public who raise concerns regarding noise produced as a result of its members activities. The Royal Aero Club proposes to continue this level of communication with any members of the public who have concerns regarding the Murrayfield Airpark. Disputes relating to noise will be handled by consultation and arbitration as this system has been found to be successful at other locations where the Royal Aero Club operates. In the past the Club has shown that it is prepared to change its policies and operations should members of the public be inconvenienced by its members activities.

NUTRIENTS

- 2.1 It is agreed that the proposed golf course is potentially a phosphorus exporting land use. However it has less potential to export phosphorus than the existing agricultural landuse as shown by the comparison between the quantities of nutrients currently applied to the site and the quantities that would be applied as a result of the development. This shows that the amount of phosphorus applied will decrease by 65%. As a result of this and the numerous features designed to limit the movement of phosphorus such as the application of red mud to the soil it is concluded that there will be a net reduction in the amount of phosphorus exported from the site.

2.2 &

- 2.3 The fertiliser application rates described in the CER are indicative only as are the estimated quantities of red mud required to improve the nutrient retention qualities of the soil. The Proponent is committed to producing a nutrient and irrigation management plan for the golf course prior to its construction. In this plan, rates of fertiliser application, types of fertilisers, rates of irrigation, types of turf, and the quantities of red mud applied will be described in detail. These will have been specifically designed for the conditions which exist on site. The Proponent is committed to seeking the advice of government agencies in this regard and to performing these activities to the satisfaction of the EPA.

WATER QUALITY

- 3.1 The CER describes the facilities that will be installed to prevent any spillages of oil and fuel from reaching surface and groundwaters. Fuel will be stored in an above ground tank which will be fully banded. Areas draining off fuel storage locations and refueling aprons will have oil traps, flame traps and other mechanisms designed to prevent the transport of any spillage away from these areas. The Proponent is obliged by law to install the above in conformance to the Explosives and Dangerous Goods Act, 1961 as described in Australian Standards 1940-1988, the Storage and Handling of Flammable and Combustible Liquids.
- 3.2 The Proponent will be providing a contingency plan in the nutrient and irrigation management plan with regard to nutrients in groundwaters and surface waters. Should monitoring detect rising levels of nutrients methods and rates of fertiliser application will be reviewed. Other sources of impact on groundwater or surface waters are not anticipated.

WETLANDS, FLORA AND FAUNA

- 4.1 The Proponent has gone to great effort to retain the remaining areas of good quality remnant vegetation and wetlands that occur within the site. These have without exception been incorporated into the design of the resort and aerodrome complex. This will ensure as much habitat for animals as is possible given that development of the site. The Proponent will be planting endemic species and other vegetation to enhance the beauty of the site and reduce its visual impact. This will also provide additional habitat for fauna.

The Proponent does not envisage any need to prevent emus and kangaroos being on the aerodrome. It is common for kangaroos and emus to be found within areas surrounding country aerodromes. Kangaroos are found at Jandakot and Bunbury and based on previous experience no problems are envisaged at Murrayfield.

- 4.2 Studies on the effects of groundwater abstraction found that there would be no affect on wetlands of the site if water was drawn from the Leederville formation. There is potential for wetland water levels to be affected if water is drawn from the Bassendean Sand unconfined aquifer. Given this it is likely that the Leederville Formation will be the preferred source of groundwater. One of the requirements of gaining a licence to extract waters from the superficial aquifer will be the monitoring of water levels on the sites wetlands. The Proponent has also committed to performing this monitoring in the CER. If it is found that abstraction is affecting the wetlands then modifications will be made regarding the rate of extraction from the superficial aquifer. This will be fully described in the nutrient management and irrigation plan.
- 4.3 A botanical survey did not detect dieback on the site. Stands of *Banksia* were in good health while isolated trees look to have been killed by burning and clearing, not by dieback. As a result of the above, the Proponent see's no need to further assess the site for dieback.
- 4.4 The Proponent has endeavoured to retain wetlands on the site that are of good quality. Only those that are unavoidable will be affected by the proposal. Assessment of those that are affected has shown them to be small, and of poor quality having been grazed and cleared. All these are ephemeral and have no importance as a summer refuge to waterbirds. The Proponent proposes to construct a number of permanent water bodies on the site within the golf course area and this, together with protection of the wetlands in good condition, will compensate for the small wetlands affected by the proposal.

The draft Swan Coastal Plain (Wetlands Protection Policy) states that any proposal that proposes to interfere with naturally occurring wetlands needs to be assessed in an environmental impact statement. The Proponent has conformed to this by preparing the CER and has included in it an assessment of each wetland on the site using the questionnaires from the draft policy.

- 5.1 Obstacle limitation limits have resulted in the need to place the entrance of the facility in the north-east corner of the site. This entrance is close to an existing wetland in the north-east and should go round its edge with little or no impact on its inundated area. The area designated on Figure 5.2 of the CER as a broadly drained plain is larger than the extent of the water body and this has lead to the conclusion that the road would impinge on the wetland.

ODOUR

- 1.3 The Proponent was aware of the existance of the abattoir during planning of the proposal even though it is not currently operating. It is prepared to accept its existance as other landownwers in the area have done.

- 5.3 The Proponent disagrees with the statement that the development lacks a buffer to the Wandalup Farm piggery. A buffer zone containing the proposed golf course and vacant land within the piggery site exist between the odour producing elements of the piggery and the proposed location of resort buildings. There will be a minimum distance of 850m between the resort building and the piggery sheds and 1200m between the resort building and effluent disposal ponds.

The Western Australian Department of Agriculture has adopted a series of recommended buffers distances for piggeries. For a piggery the size of Wandalup Farms, a buffer of 5km is required between a townsite, such as that proposed at Amarillo and the piggery, and 300m between isolated rural dwellings, dairies and industries and the piggery. It is considered that the resort equates more to an isolated dwelling or industry than a townsite principally because there will be only one establishment and visitors will be temporary and not live permanently in the area. As such the applicable buffer zone is 300m not the 3750m asserted with reference to Victorian Codes which are not applicable to Western Australia.

Recreational activities such as flying and golfing will be the major activities that guests will engage in during their stay. The Department of Agriculture's Guidelines recommend a buffer of 200m between recreational areas and a piggery of Wandalup Farms size. The distance between the nearest piggery shed and nearest golf course hole is 450m, and the distance between the effluent treatment pond and the nearest golf course hole is 900m thus there is more than sufficient buffer according to the W.A. guidelines.

The Royal Aero Club is satisfied that the buffers proposed are sufficient to prevent odour from affecting the resort guests, especially considering that all resort buildings will be fully airconditioned. The Club has been operating from the site for the past 2 years and the odour experienced is considered to be insufficient to warrant concern. The probable reason for these low levels of odour is because prevailing winds blow odours away from the site rather than toward it. Examination of a locality plan also shows that many kennel lots are closer to the piggery buildings and ponds than the proposed resort. To the knowledge of the Royal Aero Club there have not been complaints by owners within the kennel area in respect to odours from the piggery. This supports the Club's view that the piggery will not pose a problem. On the basis of the above, it is believed that no additional management strategies are required to manage odour.

PESTICIDES

- 5.2 Significant applications of pesticides are not envisaged as a result of the proposal thus details of varieties and quantities to be used are not considered relevant. If necessary, action will be taken to control mosquitos but only if they pose a problem. Advice will be sought on appropriate methods of control from the local government authority as used throughout the Shire.

OTHER ISSUES RAISED

Compatibility with Adjacent Landuses

The Proponent does not believe that the surrounding land uses will adversely affect resort users. It is considered that existing levels of noise and odour experienced on the site will not be sufficient to cause concern to the temporary guests at the resort. This conclusion is supported by previous experience on the site, buffers between existing landuses and the resort, specialised noise studies, and the nature of the activities which guests will be involved in. Studies have shown that the proposal will not subject residents to unacceptable levels of noise over that already experienced by existing landuses. As a result of the above the Proponent is of the opinion that the resort is compatible with the existing landuses in the area.

Light Spill

It is expected that spill from lights which will illuminate the main runway will not disturb adjoining properties. This is because the lights are designed to be viewed from above and not to spread light about the ground. These lights are small and will only be turned on when required. Shielding from planted trees along boundaries should effectively prevent any light from reaching neighbouring land holders.

Lifestyle

The majority of people who have moved to the area will have been made aware of the existence of the piggery, the abattoir, the existing airfield, and the expanding kennel area prior to moving. As such they would be aware of the potential level of noise these activities can produce and the affect this would have on lifestyle. Most country towns have airfields and thus it is considered that they are part of a typical rural setting in Western Australia.

Property Values

It is expected that the proposal will have a positive impact on property values on adjacent properties. Recent sales indicate that the value of properties has improved over the past few years despite knowledge that the resort is proposed. It is expected that further increases in the value of properties will occur due to the presence of adjacent high quality recreational facilities that will be accessible to members of the public through membership of the Royal Aero Club.

Public Consultation

The Royal Aero Club conducted one to one meetings with all available adjacent landowners to gather their opinions regarding the proposed development as part of the social impact assessment of the proposal. During these meetings residents raised concerns regarding the development and thus it is incorrect to say that local community members were disinclined to object to the development. When these people were given details regarding the proposal including the normal operational safety measures and

practices that would be undertaken they were generally satisfied with the proposal. Upon departure residents were asked to contact the Royal Aero Club if they had any further concerns, some have done so and some have visited the current operation to gain further information on the proposal. Since the Royal Aero Club undertook the Social Impact Assessment, the adjoining owners have been given further opportunity to comment on the proposal. In October 1991, the Shire of Murray advertised the proposal for public comment prior to considering an application for planning consent. In accordance with provisions of Councils district planning scheme, a sign was erected on site and notices sent to each owner advising them of the proposal and inviting comment. Only seven owners responded. The results of those submissions correlates with those lodged in respect of the CER and issues raised in the Social Impact Assessment.

Based on the above interactions the Proponent feels that it is fully aware of the concerns of nearby residents, that these concerns have been answered in the CER and have been allayed. The Proponent intends to continue interacting with residents who feel they will be affected by the proposal. The Proponent believes that this is an adequate method of dealing with legitimate concerns and thus sees no need for further formal surveys.

Alternative Sites

A large number of alternative sites were considered for the development and an assessment of these areas is given in the CER. It is not true to say that other areas could be used for the development as others do not offer the same features as the Nambeelup site.

Appendix 4

Additional commitments given by the proponents

ALAN TINGAY & ASSOCIATES
ENVIRONMENTAL SCIENTISTS
A.C.N. 009 103 468

ENVIRONMENTAL PROTECTION AUTHORITY

23 MAR 1992

SAB:pl/161.92005

File No. T-1989-152 Initials GB

20 March 1992

Mr Jeff Bott
Assessment Officer
Environmental Protection Authority
38 Mounts Bay Road
PERTH WA 6000

FAXED

Dear Jeff,

RE: MURRAYFIELD RESPONSES

This letter is in response to discussions with you regarding the expansion of the Murrayfield Airpark at Nambelup and the potential impact of noise from aircraft on the proposed Amarillo development.

Modelling by the proponents noise consultants and an Australian Noise Exposure Forecast generated by the Civil Aviation Authority in Canberra has shown that the area exposed to unacceptable levels of noise for residential purposes is confined to the aerodrome and its immediate vicinity. The maximum extension of this zone is 1800m to the north-east. Beyond this zone the level of noise that would be experienced would be considered acceptable for residential land uses by the Civil Aviation Authority. On this basis it is concluded that aircraft will not unacceptably affect the future residents of the proposed Amarillo Estate.

Despite the above, the proponent is prepared to commit to controlling the activities of its members should it be shown that the above forecasts have been incorrect.

"The Royal Aero Club of Western Australia and Hawkview Pty Ltd commit to the following:

The proponent will control the activities of its shareholders and members should it be shown that their activities have breached Civil Aviation Authority Codes of Conduct or resulted in the exceeding of Civil Aviation Authority Guidelines relating to noise and therefore unacceptably effected the residents of the proposed Homeswest Amarillo Estate. This will be done to the satisfaction of the Civil Aviation Authority and the Environmental Protection Authority."

You will note that the commitment also covers the behaviour of pilots and that this behaviour will need to be in conformance with CAA Codes.

I hope the above meets your requirements and will be happy to provide more information or answer any questions that you may have.

Yours sincerely,



SCOTT BIRD
Associate

54764 INFO